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(54) Title: **X-RAY PIXEL DETECTOR DEVICE AND FABRICATION METHOD**

(57) Abstract

A method and a device are disclosed for producing an X-ray pixel detector, i.e. an imaging detector for X-ray photons, the detector presenting high efficiency combined with high resolution for obtaining a high image quality detector while at the same time minimizing the X-ray dose used. The application is particularly important whenever the X-ray photon absorption distance is much longer than the required pixel size. The arrangement according to the present invention presents a structure based on light-guiding of secondarily produced photons within a scintillating pixel detector in conjunction with, a CCD or a CMOS pixel detector. The structure according to the invention presents a matrix (8) having deep pores (10) fabricated by high-aspect ratio silicon etching techniques producing very thin walls and with a pore spacing less or equal to the size of a pixel (2) of the image detector used. The pore matrix is subsequently filled by melting a scintillating material into the pores such that, in each pore, a single scintillating block is formed. The silicon matrix (8) may further utilize a reflective layer to increase light guiding down to the image detector chip.

